PCT Article 19 Amendments of March 24, 2005

1. A method for evaluating travel and/or traffic situations with at least two detection cameras (2, 3) arranged at a distance to one another on a vehicle (1), whose respective detection regions (11, 12) overlap in a common overlapping region (13), characterised in that with the detection cameras and in a temporally synchronised and spatially calibrated manner, at least one artificially attached or naturally present reference point of the surroundings (23, 24, 25) and/or of at least one second vehicle (18, 19) is triangulated, i.e. is detected in its spatial position, and afterwards the temporal and spatial location and position (20) of the equipped vehicle (1) and/or the location and position (21) of at least one further vehicle (17) relative to one another and/or relative to the location and position of the stationary surroundings (22) is completely or partly determined.

2. A method according to claim 1, characterised in that an object, e.g. from a CAD data bank is linked to the spatial location and position of the detection cameras (2, 3) and/or to at least one artificially or naturally marked reference point (18, 19), whereupon the position and/or movement of at least one of these objects (1, 17) is reconstructed from the picture recording.

3. A method according to one of the preceding claims, characterised in that the triangulation (T) is effected by picture processing and/or photogrammetry, wherein in the two-dimensional picture pair sequence of a picture recording, the computation of the position and allocation of the image pair of one or more three-dimensional reference points (18, 19, 23, 24, 25) and their subsequent transformation into the three-dimensional space is effected semi-automatically or automatically in a computer programmable with suitable computation formulae, wherein the movements at least of the equipped vehicle (1) relative to the surroundings and/or to at least one further vehicle (17) are computed, specifically the position, the travel direction and any direction changes, as well as the speed and any speed changes, i.e. an acceleration and/or a braking procedure, as well as the angular speed and any angular speed changes and thus a virtual representation of the course of events of an accident and/or of a critical traffic situation from any observers perspective may be computed and represented.

4. A method according to one of the preceding claims, characterised in that when required, with subsequently recorded pictures of the surroundings or their part regions which are of relevance to the accident, a virtual, three-dimensional model of the surroundings or their part regions is applied into the present, stationary surroundings coordinate system (22), by which means this virtual, three-dimensional surroundings model is superimposed on the spatial and temporal location and position of one or more vehicles (1, 17) relative to the coordinate system (22) in a scaled manner.

5. An installation for recording travel and/or traffic situations of vehicles according to one or more of the method claims 1 to 4, consisting of two detection cameras (2, 3) arranged at a distance (15) to one another, whose respective detection regions (11, 12) overlap in a common overlapping region (13), characterised in that the detection cameras (2, 3) in their spatial location and position in the vehicle coordinate system are photogrammetrically calibrated-in and are temporally synchronised, wherein their individual calibration data is stored on an associated memory chip, by which means at least one reference point of the surroundings (23, 24, 25) and/or of at least one second vehicle (18, 19), which is recorded by these detection cameras (2, 3) and is artificially attached or naturally present, may be triangulated, by which means the temporal and spatial three-dimensional position of these artificially or naturally marked reference points may be determined and they may be selectively linked to objects, e.g. from a CAD vehicle data bank, so that the location and position and/or movement of the coordinate system (20) of this vehicle (1) relative to a stationary surroundings coordinate system (20) and/or relative to at least one further coordinate system (21) of the vehicle (17) may be reconstructed from a serial picture recording.

6. An installation according to claim 5, characterised in that it comprises at least one memory (6, 7) coupled to the detection cameras (2, 3) for the serial storage of a picture sequence, for example in the form of a circular buffer, and at least one further, non-volatile memory (8, 9) for storing the photogrammetric calibration data and/or the of the spatial camera arrangement in the coordinate system (20) of the equipped vehicle (1).

7. An installation according to one of the claims 5 to 6, characterised in that the detection cameras (2, 3) are connected to a time measurement device, e.g. to radio clock, with the purpose of rendering the absolute time of the respective picture recording determinable.

8. An installation according to one of the claims 5 to 7, characterised in that at least one sound recording device, e.g. a microphone (4, 5) is present, for the picture-synchronous recording of noises.

9. An installation according to one of the claims 5 to 8, characterised in that it includes a sensor for the automatic activation or securing of a data storage, or an activation device, e.g. a button on the steering wheel, for the manual activation or for securing data storage.

10. An installation according to one of the claims 5 to 9, characterised in that for supporting the method, artificially attached reference points (18, 19, 23, 24, 25) are arranged on a vehicle (1, 17) and/or in the region of traffic routes, wherein these artificial reference points (18, 19, 23, 24, 25) for the purpose of an improved automatic recognition are coded in shape and/or colour and/or are designed illuminating in a passive or active manner.